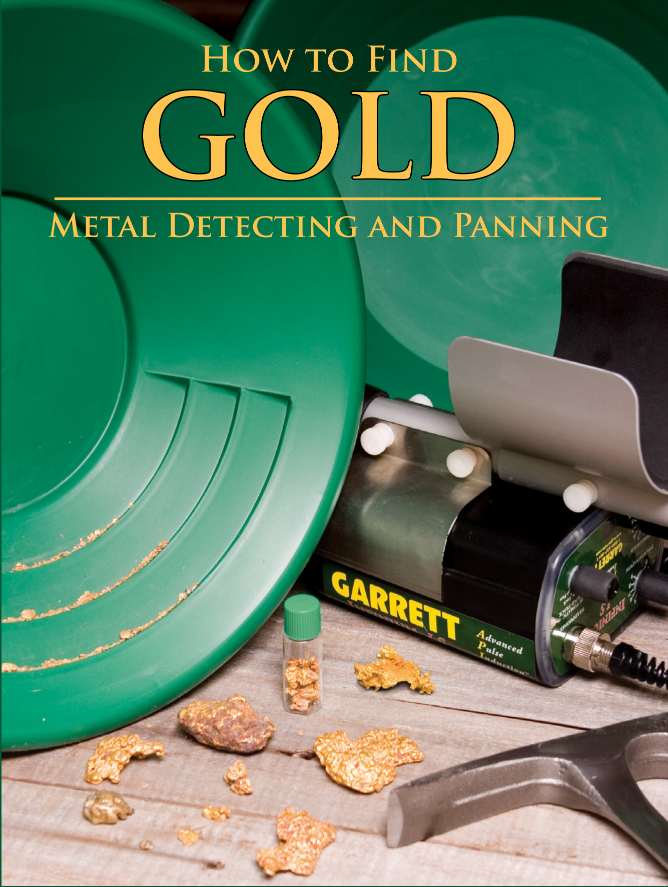
How to Find GOLD

Metal Detecting and Panning



Charles Garrett / Roy Lagal

How to Find

GOLD

Metal Detecting and Panning

Charles Garrett/Roy Lagal

First printing: July 2007

CONTENTS



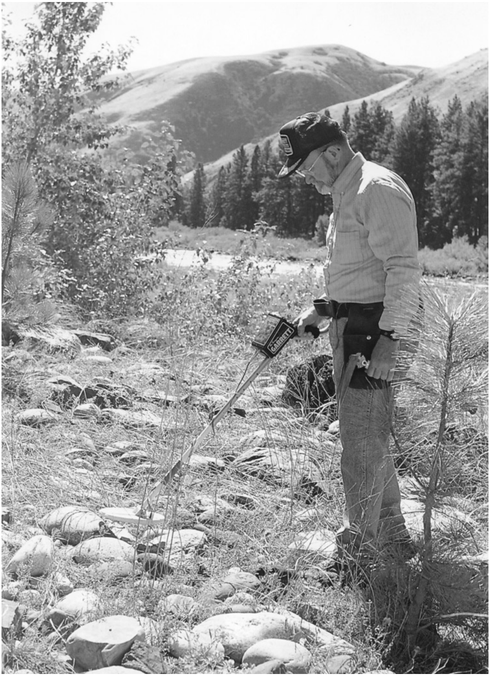
Charles and Eleanor Garrett founded Garrett Electronics in 1964. Their company sells its patented metal detectors and Gravity Trap® gold pans throughout the world.

ABOUT THE AUTHORS

Modern-day prospectors who look for gold with metal detectors, as well as old-timers and others with gold pans, pay attention when Charles Garrett speaks. For more than 40 years he has pioneered the development of the modern metal detector as a tool for finding gold and demonstrated its capabilities in successful searches. He has devoted himself to teaching others how to find gold with pans and detectors through lectures, seminars, books and articles.

He has discovered treasure with metal detectors of his own design on every continent except Antarctica, and he has also scanned under lakes, seas and oceans of the world. Many of the treasures and relics he has discovered are displayed in the Garrett Museum at the company's factory in Garland, Texas.

Charles Garrett's lifetime interest in treasure hunting and prospecting prepared him to excel in manufacturing metal detectors and gold pans. After earning a Bachelor of Science degree in Electrical Engineering from Lamar University in Beaumont, Texas, he worked at Texas Instruments and Teledyne Geotech, developing systems and equipment



Charles Garrett has spent years in the field testing his metal detectors. His Scorpion Gold Stinger® model can seek gold in stream beds, mine veins, dredge tailings and in general prospecting.



Roy Lagal with one of his patented Gravity Trap® gold pans.

required by America's fledgling space effort. His avocation of building ground search metal detectors became a career when he and his wife, Eleanor, founded Garrett Electronics in 1964 to manufacture and market his inventions. He encountered Roy Lagal just a few years later, and a powerful prospecting team was born.

A devoted treasure hunter for many decades, Lagal grew up on the Kansas-Oklahoma border and learned gold panning the old 19th-century way. While panning and dredging for gold and hunting for caches and other treasures, Lagal patented the famed gold pans with Gravity Trap riffles which are produced by Garrett.

Garrett quality is known today throughout the world. From the beginning, Charles Garrett tested his equipment in the field—to insure it will work for customers regardless of ground conditions and environment. He became recognized as an unofficial spokesman for the hobby of treasure hunting and the metal detecting industry through a long list of honors, personal appearances and books.

Gold panning is as old as mankind. Borrowing from earlier books by Garrett and Lagal, this condensed book combines two lifetimes of gold prospecting knowledge. Blending prospecting tips proven successful through time with the latest information on gold recovery, *How to Find Gold* is all you need to know to get started.

INTRODUCTION

There is no deep mystery to prospecting for gold. The precious metal has been a subject of man's striving since the dawn of time. But, there is still excitement in the search itself. And, there can be great profit. After purchasing a gold pan kit or metal detector, no further expenditures of cash are required. Success is limited only by the enterprise you display and your dreams as a prospector. The thrill of happiness is immeasurable, but monetary rewards come in all sizes from small nuggets worth a few hundred dollars to the huge "Hand of Faith" nugget that was found by an amateur prospector with a Garrett detector and reportedly sold for one million dollars.

You can expect to find gold in many forms:

• **Placer** (pronounced "plas-er," plaster without the "T") **deposits**, either in a stream or in dry sand and gravel;

• **Nuggets of pure metal**, which can be found in nature by themselves, in veins or as part of a placer deposit; and

• **Lode or hard rock deposits** in a vein and often combined with other materials.

Placer gold is the type most often sought by the weekend prospector who enters the gold fields with a panning kit. Yet more and more hobbyists are now taking metal detectors with them to search for nuggets and rich lode deposits as well. Plus, detectors can help locate deposits of placer gold which can then be panned.

Beginning prospectors and professionals alike can find gold in a pan or discover gold nuggets with a metal detector. They can relive the past, participate in adventure in the great outdoors and enjoy physical exercise, all the while with the potential of monetary profit at the risk of only a few dollars.

It could happen to you!

Charles Garrett

Garland, Texas

BASIC TOOLS

Virtually any quality metal detector with a small size search coil can be used to help find gold. Professional gold panners desiring maximum success will use specialty gold detectors such as Garrett's *Scorpion Gold Stinger®* or *Infinium LS™* models to aid their search. Some of the newer, advanced design metal detectors, such as Garrett's ACE™ 250, will also do an excellent job of finding gold.

For successful panning, you will need the following (all available in a Garrett Gold Pan Kit): a 10-inch Gravity Trap pan, combination classifier/sifter, Gold Guzzler suction bottle, tweezers, and gold vials.

Note: Other pre-packaged kits are available that contain one or more pans and other screening devices. Many include unnecessary items that can slow down the learning process and complicate your hobby. If you select a kit other

than that offered by Garrett, make certain the pan you use is of circular design and time-proven green color. I urge you to avoid equipment using confusing or complicated procedures that vary from the traditional, centuries-old, standard panning practices as outlined in this book.

Let me assure you that the implements in your Garrett kit include all the equipment you'll ever need to pan successfully for gold!

Additional Tools

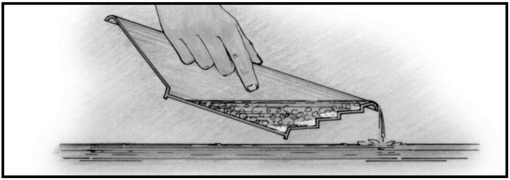
Persistent weekend prospectors sometimes encounter field conditions that make additional tools necessary, most of which are specified in this book. Among them are...

- Waders (or rubber boots)
- Magnifying glass
- Small can
- Ore bag (or sturdy sack)
- Face mask (snorkel)
- Large screwdriver (or small rod)
- Rock hammer
- Shovel
- Large and small pry bars

USING A PAN TO FIND GOLD

Because every tool is truly optional except the detector and gold pan, careful attention should be given to the choice of each. Concerning pans, many sizes and types are available, and they vary in shape, color and material. Today's most popular gold pan is made of plastic, which has significant advantages over tin or steel.

Plastic is lightweight and is not affected by acid or other substances that can attack metal. Plastic is not attracted by magnets and is easy to cast or mold into a specific design. Non-biodegradable plastic will last literally for centuries, while steel pans rust away. True gravity-trap riffles are indented at a right angle, offering a distinct advantage, especially for the beginner. Note: Speaking personally, I must recommend *Garrett's Gravity Trap Gold Pan* with its sharp 90-degree riffles which trap gold, as shown in the accompanying diagram and photographs.



Lifelong prospector Roy Lagal designed, field-tested and patented (#4,162,969) these pans, and Garrett has sold tens of thousands of them.

Wet Panning

Whenever water is available, wet panning is the method that should be used. This is the type of panning traditionally associated with searching for gold in streams. All tools in the Garrett Gold Panning Kit will be used in wet panning. Coordinate instructions with accompanying photographs:

- **Step 1:** Place Classifier atop the 14-inch or 15-inch *Gravity Trap Gold Pan* and fill the classifier with gravel, sand and other materials.
- **Step 2:** Submerge both the pan and classifier atop it, holding firmly with both hands, and





Steps 1 and 2



Step 3



Step 4

use a twisting and shuffling motion to shake them. Small gravel, sand and gold will pass through the classifier and settle in the gold pan.

• **Step 3:** Check for nuggets remaining among the large rocks still in the classifier.

• **Step 4:** Remove the classifier, and discard its remaining contents.

Step 5





• **Step 5:** Grasp the pan securely with both hands while it is still under water. Begin rotating the contents in the pan as you raise it slightly from the water. Occasionally shake the pan, which will help cause heavier contents to settle. Remove small rocks as they continually move to the top of the pan's contents. Occasionally tip the pan forward in the water to permit water to carry off lighter material. Be careful, however, not to lose any of the heavier contents of the pan other than the rocks you remove. Eventually about a handful of concentrates will remain in the pan. With your hands, break up any mud balls that remain in the pan.



Step 6

• **Step 6:** Transfer all the material that remains in your pan to the smaller 10-inch finishing pan.

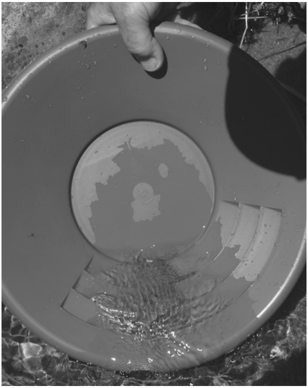
• **Step 7:** Make certain that the *Gravity Trap* riffles are always on the lower side as you rotate

Step 7

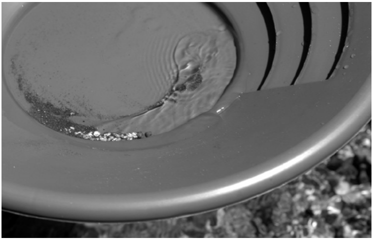


the pan under water. This brings all materials across the traps. You will develop your own method for shaking; i.e., side to side, back and forth or a circular motion. Your aim in moving the pan under water is to cause the heavier gold to settle into the riffles where it will be trapped. As the contents become concentrated on the bottom of the pan and in its riffles, the total amount of material will appear smaller.

• **Step 8:** Continue to tip your gold pan occasionally so that water can carry off lighter materials. Try to separate all other materials from your gold by a gently swirling motion, leaving the gold concentrated together in the riffles.



Step 8

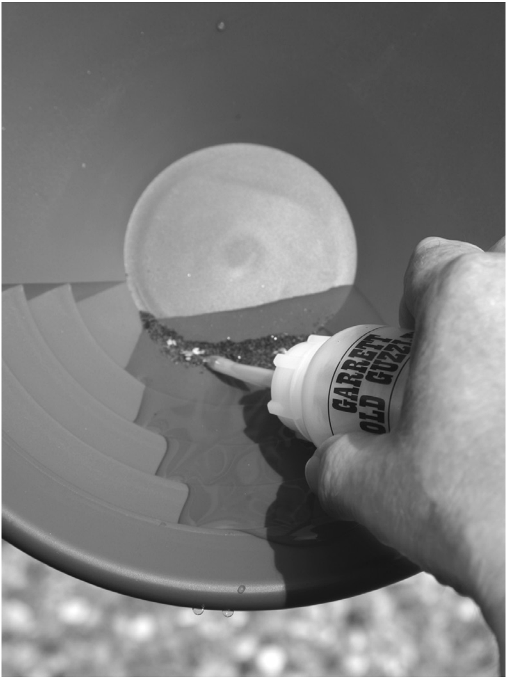


Step 9

• **Step 9:** Retrieve your gold. Use tweezers for all large pieces and the gold suction bottle to vacuum up fine gold from the water.

As you follow these instructions, you will develop your own methods of panning. No unusual type of equipment such as square or oblong pans will help because use of the standard circular pan is natural and is much easier for anyone to master.

You can practice at home by using small BB shot which will behave like little gold nuggets and settle in the riffles. More specific wet panning instructions and illustrations are contained in the RAM book *Gold Panning Is Easy*, which is included on the order blank at the end of this book.



For the final step, retrieve your smaller gold pieces with a *Garrett Gold Guzzler™* vacuum bottle. Tweezers work fine for the larger gold pieces you may find.

Dry Panning

Dry panning requires more skill than wet panning but in desert areas it is often the only practical gold recovery method. Pans to be used in dry panning for gold should contain riffle traps that are sharp, deep and positioned at a 90-degree angle to the wall of the pan. Gravity Trap riffles are designed to let your gold pan function as a small dry-washing sluice box. If operated properly, the riffles make this pan excellent for finding plaser gold and small nuggets, even when water is not available.

As you follow these instructions, observe the accompanying photographs. Place dry material you suspect to contain gold in a 14-inch or 15-inch *Garrett's Gravity Trap Gold Pan*. In some cases, you may need a small chisel or pick to pry out the rocks and soil you wish to inspect. Clean larger rocks by rubbing them against each other or by striking them together sharply. Let the dirt and small gravel that is loosened fall into the gold pan. Discard the thoroughly cleaned rocks after careful inspection to make certain none of them is a nugget.





Collect material *(left)*, sort out large rocks *(above)*, and bump pan *(below)* to shift the contents.



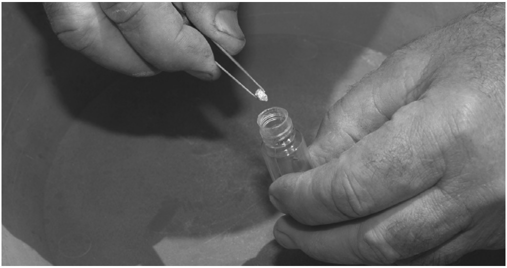


Sift and cull out larger rocks using your fingers.



Tilt the pan to a 45˚ angle and bump to vibrate contents over the riffles. Use tweezers to remove any small nuggets or flakes that are exposed.





Sift fingers through the remaining materials and lift out the smaller rocks without removing any fine gravel or sand. Examine these rocks carefully for traces of gold before discarding. Continue examination of materials until only fine concentrates remain.

Lift the pan with one hand and tilt to a 45° angle with riffles on the lower side. This permits contents to flow over the riffles, which will trap the gold. Use your other hand to bump the higher edge of the pan close to you. A sharp bump will vibrate the contents of the pan as they flow over the riffles. Continue bumping the pan and occasionally level it to shift contents to the bottom. Repeat this procedure as the lighter mate-

rial gradually flows out of the pan. Finally only one or two handfuls of concentrates will remain which can be transferred to your smaller pan.

Inspect the remaining material by spreading the concentrates over the pan bottom. You will occasionally expose a small nugget or gold flake. Use tweezers to retrieve the nuggets or gold flakes.

Thoughts on Dry Panning

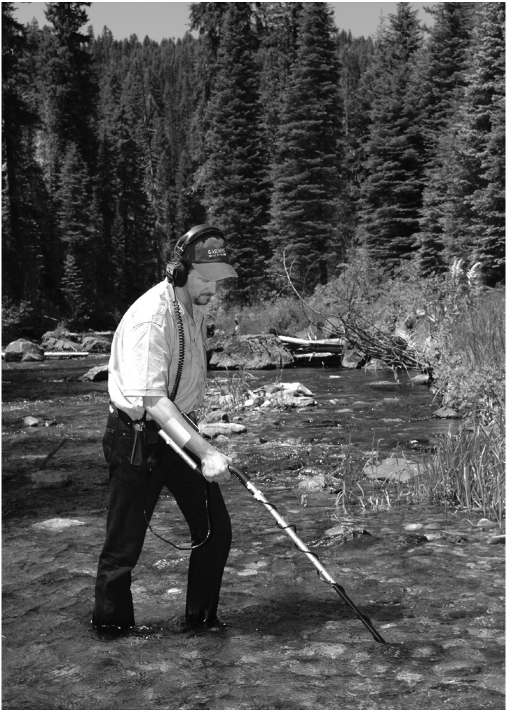
When searching rugged canyons, arid deserts and other remote and dry locations, it is sometimes difficult to transport a mechanical dry washing unit that can help find gold. Because dry panning with a *Garrett's Gravity Trap Gold Pan* can be easily accomplished, such a pan should always be carried especially when prospecting in areas remote from water.

The deserts of Western America contain many fortunes in gold that have simply been overlooked. Some were never tested because water was not available. If in doubt about an area, use your *Garrett's Gravity Trap Gold Pan*.

HOW TO FIND GOLD WITH A METAL DETECTOR

Be confident that you *can* find gold with a metal detector! Both amateur and professional prospectors are succeeding in this effort daily. Yes, you *can* be successful; we urge you never to doubt yourself. Take my word for it. If you're using a modern detector in the proper manner and hunting where gold is to be found…if you persevere, you will find gold. A modern metal detector can produce more ounces of gold per dollar spent than any other type of prospecting equipment used in the world today. In fact, more gold nuggets have probably been discovered in recent years with detectors than were found by eyesight alone in all the early gold rushes.

This next section of the book is designed to explain clearly the steps necessary for finding gold with a metal detector. We're not going to talk about coins, jewelry, relics or any other popular detector targets. And, believe me, hunting for gold is different! No matter how much



Garrett's Infinium LS metal detector is the perfect tool to search for gold targets to be panned from streams or rivers.

success you’ve had in the park, on the beach or anywhere else in using a metal detector…no matter how many coins, relics or gold rings you’ve found, you’ll need to acquaint yourself with different techniques to maximize your success in the gold fields.

Detectors designed specifically for hunting gold can discover nuggets in stream beds and in deserts. They can also be used to seek nuggets in dredge tailings, locate new gold sources and otherwise prove useful in all aspects of field prospecting.

Today’s gold-seeker—whether he or she is working full-time at the task or only on weekends and vacations—carries the electronic metal detector as a valuable prospecting tool. Sensitive, lightweight, stable and reliable, today’s metal detector serves as an “extra pair of eyes” for the modern prospector

Also understand that certain promoters and manufacturers have misled hobbyists into believing that *any* type of detector can locate some sort of gold—whether it be nuggets, placer gold or ore veins. They would also have you believe

that gold can be located just about any place you might want to search with a detector.

This is simply not true! There are two basic requirements to finding gold with a detector:

1. **You can expect more success from a metal detector with precise manual or automatic ground balancing capabilities, factory-calibrated discrimination and multiple searchcoils;**
2. **You must look in locations where gold is known to exist.**

For maximum effectiveness, a prospecting detector should have a deep-seeking All Metal mode of operation and interchangeable search-coils of various sizes. Manual ground balance and calibrated discrimination are also important. Although several manufacturers build detectors especially designed for finding gold, this field guide only discusses those detectors designed and manufactured by Garrett.

Which Detectors?

To find gold with a metal detector it is absolutely necessary that you use it properly. Any of today's Garrett detectors can be used to look for gold nuggets, and I'm confident that you will enjoy some success with any of them, if used patiently and properly. For maximum success, however, you have to be hunting with the *right* detector and searchcoils. There are a number of metal detectors on the market today that are advertised as suitable for finding gold. But, just as you would want the proper type of rifle or shotgun whenever you go hunting, you want the right detector when you hunt for gold. You wouldn't hunt for ducks with a rifle. I urge you



The Scorpion Gold Stinger is perfect for hunting nuggets of all sizes.



Using an optional mono coil with the Infinium LS helps to eliminate pesky “hot rocks” while searching tailing piles.

not to use the wrong type of detector hunting for gold.

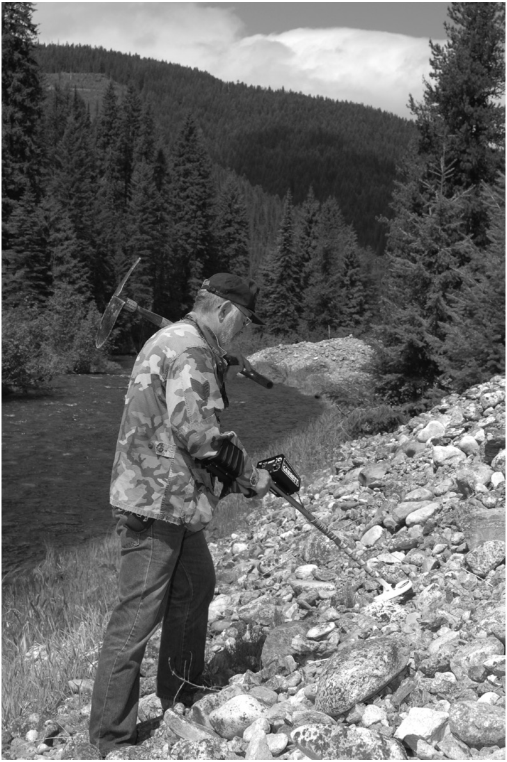
The Garrett *Scorpion Gold Stinger* was developed specifically for seeking gold and other precious metals. It is equipped with Garrett's famous 15kHz *Groundhog®* circuit and features a convertible design for comfortable hip mount operation.

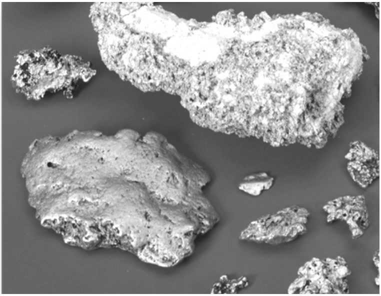
In addition to the *Scorpion Gold Stinger*, Garrett's *GTI 2500* is ideal for the search for gold. The ability to ground balance precisely and discriminate properly also make the *Infinium LS*™ and the *Master Hunter® CX Plus* quite satisfactory, whether your search be for nuggets, placer gold or surface veins.

The *Depth Multiplier Treasure Hound*™ and *Eagle Eye*™ two-box searchcoils should be used when searching for deeper veins or ore structures. Garrett *GTA*, *GTP* and *ACE* model detectors have built a reputation for themselves among gold-seeking hobbyists who use them for nugget hunting. Garrett continually receives reports from customers who have found nuggets with these detectors.

Instructions on Metal Detecting for Gold:

- **Step 1.** Always hunt with a metal detector (and pan) in areas where gold has already been found. Only after gaining experience should you try to explore "new" territory with a metal detector. Gold discovery will certainly come more quickly in known gold-producing areas.
- **Step 2.** Electronic prospecting requires techniques that coin hunters or beachcombers have probably not encountered. Try to develop these techniques by working with someone who has been successful in finding gold or by carefully studying the literature listed in this booklet to achieve success more rapidly. "Trial and error" in the field can be a slow and painful learning process...time-consuming, too!
- **Step 3.** Familiarize yourself with various types of ore and other rocks in the area you are searching.
- **Step 4.** Always hunt in the All Metal mode and dig every target until you become thoroughly familiar with your detector. Then use your minimum (iron nail) setting.
- **Step 5.** Be patient!





NUGGET HUNTING

The term “nugget hunting” is so ambiguous that no description of it could ever be complete. And there are no absolute rules to follow or short cuts you can take. But, that’s what this section of the book, using a metal detector to find gold, is really all about—nugget hunting. A gold nugget, whether it be the size of a pinhead or bigger than your fist, is what you’re probably seeking when you go into the gold fields with a metal detector. And, if you’re hunting in the right place with a quality detector, you stand a good chance of finding one.

Let me emphasize that literally millions of dollars in gold nuggets are being discovered all over the world today with metal detectors.

Using a modern metal detector will produce the best results where gold abounds and large nuggets commonly occur. These "mother lode" areas include the deserts of the Western United States, Alaska, Australia, New Zealand, China, Mexico, Africa and as well as other areas of the world where sizable nuggets have been found in nature. Use of the metal detector as an optional gold hunting tool will provide the weekend prospector with many enjoyable and exciting hours of recreation and can unearth riches beyond anyone's wildest imagination.

Instructions on Nugget Hunting:

- **Step 1.** Use a detector that has *automatic ground balancing*. Set the discrimination mode to iron nail rejection.
- **Step 2.** *Scan slowly* over wet or dry areas. Dig and examine every target. You will dig some junk targets but we hope that some of them turn out to be gold nuggets.

• **Step 3.** When you have *found and precisely pinpointed* a target, try to locate it by eyesight or slip a shovel under it and then place all material in a plastic gold pan. If the target is located in a bedrock formation, use your rock hammer and small bar to dislodge it into the pan for observation.

• **Step 4.** Use your detector to *check the contents* of your pan. This is an important reason to use a plastic pan since no inspection with a detector would be possible in a metal pan.

• **Step 5.** *Continue scanning*, and examine every target response carefully. Always use the shovel and gold pan to make certain that tiny nuggets do not wash away or be lost in cracks in the ground.

Modern metal detectors can be used to locate large concentrations of magnetic black sand, which often indicate locations of gold. When you find such sand, inspect it carefully for gold nuggets and fine gold.

Metal detector earphones are an advantage in most areas since small nuggets generate only a faint response. It is best to dig or visually

investigate all targets. Areas with small, loose material often make visual identification of targets more difficult. When searching such areas, shovel the material containing your target into a plastic gold pan or small plastic cup and check for electronic responses.

When you have a small target in the pan's bottom, use your fingers to spread out the pan's contents. Visually locate your target.

Cracks and other bedrock sections where gold may be trapped should be inspected with a detector in a similar manner. More detailed instructions are contained in the RAM book, *You Can Find Gold with a Metal Detector*.

Streams can be a valuable source of nuggets. In heavily mineralized areas where productive mines are located, rich ore specimens are often deposited in streams by natural elements. All targets should be carefully examined before assuming one to be a "hot rock."

Valuable antique coins can often be found in streams of old mining districts. The silver-producing areas of Mexico also offer opportunities to discover large nuggets that can be

easily recovered from creeks and rivers. Small streams created by the melting of large glaciers in Alaska and western Canada often contain nuggets that can be easily found with modern detectors.

Large nuggets encrusted with a black or dark coating have been found, particularly on mountain tops. It is believed that volcanic actions or oxidation of other minerals and materials created the black coating with which the gold is encrusted. Commonly called “volcanic gold” or “black nuggets,” such discoveries represent a fantastic opportunity for the prospector and are almost impossible to locate except with electronic detectors.

OLD MINES

Old mines, tunnels and other areas of underground exploration in past years can offer a bonanza to the electronic prospector. This is not meant to exclude newer mines, but the newer locations are likelier to have undergone electronic detection. In those older mines that were abandoned decades ago, however, all the hard work of earth moving has already been completed. It is possible that the original operators, equipped only with their eyesight and instincts, missed a vein or "pocket" by inches.

In fact, by examining only a few inches deep in the floors, walls and ceilings of an abandoned mine you will prospect more cubic yardage than the original miners who moved literally tons of earth and rock.

When you find an old mine that is a likely source of gold, begin by using your metal detector to check the material lying on its floor. There is always the remote possibility that you



Charles Garrett and Roy Lagal scan behind the walls of an abandoned mine. Metal detectors can find gold that early-day miners missed by inches.

are the first person who has looked here since the mine was abandoned, and you can occasionally find high-grade ore in older mine tunnels and shafts. These old mines were worked by far less modern methods than you are using.

Caution: old mines can be *extremely dangerous*. I urge you to be especially careful when working anywhere around them and *never* to enter one alone. It is also important that you always have permission from the owner.

In mining districts where rich gold pockets were common, secondary enrichments very often occurred. This phenomenon was caused by the deposit's being leached or decomposed, causing gold values to become trapped far away from the original pocket.

Such a fine deposit was rarely visible and will usually cause only a slight audio response on the finest detector. In fact, fine gold is sometimes not conclusive enough to cause any audible response on a detector unless you are using a high quality, modern instrument.

In Mexico, I recovered literally tons of pure native silver from old Spanish mines with the aid of metal detectors. The almost-pure silver was unidentifiable with the naked eye because it was concealed within the mine walls.

Arizona mountain ranges are rich in native silver and produce good results for those whose research helps them locate conductive ore patterns. Canadian silver mines in the Cobalt district offer unlimited opportunities to the electronic prospector. The silver here is almost pure and in a native conductive state. The

only remaining obstacle is obtaining permission to inspect and remove ore samples from the abandoned mines. Shallow gold mines in Australia and New Zealand are producing fantastic finds when reworked with metal detectors.

Prospecting permits are required in Canada and Australia. Obtaining one is a simple procedure at a cost of only a few dollars. I urge you not to fail to obtain a permit.

To search mines, select a modern metal detector which is capable of canceling iron minerals. Such a quality detector will also be able to identify ferrous and non-ferrous deposits and measure their conductivity.

Instructions on Searching Old Mines:

- **Step 1.** Attach a *large searchcoil* to the detector for maximum depth penetration.
- **Step 2.** *Ground balance* the detector for local conditions in accordance with manufacturer's instructions.
- **Step 3.** Search the area with a *slow scanning motion* of the searchcoil. Make sure the detector remains in the same position relative to



Searching old mines should only be done with great care and never while alone. When a target is detected, use your detector's discrimination feature to determine its content.

your body to prevent false signals coming from your light, shovel, tools or other metallic items. The searchcoil should normally be six inches to one foot away from the search area, but this distance can be altered in relation to the presence of magnetic iron. False signals can be caused by the uneven nature of surface areas. Pay close

attention to the roof of mine tunnels because an unexposed piece of rich ore could have been left there. Also, scan the floor very carefully. If the mine was producing high grade ore, it is quite possible that a few specimens might be found lying on the floor. They are probably small but could be quite rich.

• **Step 4.** *Investigate all targets*! Often a deposit may be only slightly conductive but still be enormously rich. When a target is detected, use the detector's discrimination feature to determine its content. The target may be difficult to examine because of small pieces of iron, tools, blasting caps or other refuse present. If so, a specimen should be removed by hand and examined with the detector and its coil in a prone position.

• **Step 5.** Always *obtain specimens* when in doubt. Often the target can be identified as worthless iron, but specimens should be obtained with the rock hammer or small bar for later examination.

Don't overlook the abundance of ore that is always to be found lying around on the tun-

nel floors or beside rails between the mine and mill or loading area. By testing these ore samples with a detector you can uncover valuable specimens overlooked by the original miners. No matter where the ore came from in a mine, when it fell off a cart, it was often not considered valuable enough to recover—because it contained no gold that was visible to the naked eye, Remember, this was the only gold-seeking tool possessed by early-day miners.

Additional information on searching old mines is contained in the book, *You Can Find Gold with a Metal Detector*, available from RAM Books.

MINE DUMPS

The term “mine dump” generally refers to locations where ore from a mine or mines was stored prior to milling or transportation from the site. Other than desert areas where electronic prospectors are achieving amazing results locating large gold nuggets, the most profitable areas for finding gold with a metal detector are the old ore dumps where rich specimens might have been overlooked for one reason or another. Someone else has completed the work here of digging out the material from beneath the earth. Your task is to use your detector to locate all the gold that was left behind. In addition to scanning the rock piles, you should scan the roads where mine rocks were placed to make roads in the mud. Some of my best finds were located down in such roads.

Native silver and ore will often be electronically detected within worthless rock which can be broken up to expose the almost pure virgin specimens. They may be hard to spot visually

and may require breaking up larger pieces of rock for hand-testing small specimens with the detector. Even the faintest responses can then be interpreted.

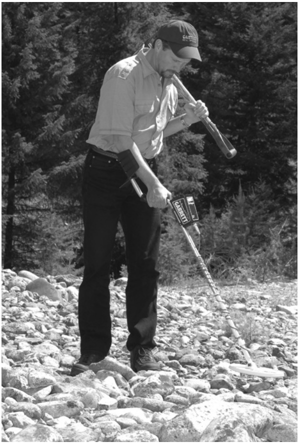
In the United States, Canada and Mexico where gold and silver often occurred in an almost pure, native state, searching old mine dumps with a modern metal detector is often the most productive type of weekend prospecting. Large specimens weighing several pounds, yet with almost pure metallic content and are regularly being recovered at dumps by prospectors using metal detectors. You can see many of these specimens on display in museums and prospecting shops. Our Garrett factory treasure museum contains several nice gold and silver dump specimens.

My largest is a 50-pound, 90% pure silver ore dump "proof" of what I say. Yes, it is a 50-pounder, a joy to behold that I found with my detector in Canada. Two smaller specimens were laying close to it. All were two feet deep, mixed in with other mine dump rocks. I have also found hundreds of smaller specimens.

Instructions on Searching Mine Dumps:

- **Step 1.** Attach a *medium or large searchcoil* to a modern metal detector.
- **Step 2.** *Ground balance* the detector for local conditions in accordance with manufacturer's instructions or let your detector's automatic mode do the job.
- **Step 3.** *Search the area by sweeping* your searchcoil over the dump at a height of about four inches to one foot, depending on the amount of interference encountered from magnetic iron in the rocks.
- **Step 4.** *Investigate target responses.* When targets are located, dig them out and isolate them for further testing. Place the detector in a prone position and determine if the target is conductive or worthless "hot rock" by using the Discriminate mode on your detector. Accuracy is not always possible with on-site inspection, but it can be helpful, especially if you will familiarize yourself with different ores and metals known to be present in the area you are searching. Always test target samples for conductivity with the detector lying down on a non-metallic surface.

• **Step 5.** Place specimens in an ore bag and bring them home for better evaluation. "Hot rocks" will usually be rejected at the dump through use of just a small amount of discrimination. When visual inspection indicates that a target is located in a larger worthless rock, use your rock hammer to break out the target. This will avoid the necessity of transporting heavy amounts of worthless material.



Mine dumps and dredge tailings can produce spectacular discoveries. Be sure to use a metal detector that can effectively handle such highly mineralized ground content.

DREDGE TAILINGS

Entire river valleys have been dredged by large mining operations. Rocks discarded because they were too large for the trommel sometimes contained nuggets. At other times fine gold and nuggets were concealed in large clay and mud balls. This gold, still in its ancient protective disguise, now lies in large piles along the banks of streams...awaiting your modern metal detector.

Select an area that has produced large nuggets and one that presents easy access. Be especially attentive on wet days or when the piles are wet because specimens are often easily visible at these times. I once witnessed the recovery of a gold nugget that weighed 2½-pounds from the dredge tailings of one of the better known Idaho mining districts.

Instructions on Dredge Tailings:

- **Step 1.** Use a *medium or small* searchcoil on a modern metal detector.

• **Step 2.** *Ground balance* the detector for local conditions in accordance with manufacturer's instructions. If your detector has automatic ground balance, USE IT! Depending upon the ore mixture of the rocks, vary your searchcoil speed during scanning until your audio tone smooths out. Then listen for faint repetitive signals.

• **Step 3.** *Search* the pile. Often small pieces of junk iron will be found in dredge tailings along with "hot rocks." Identification should never be attempted casually; carefully investigate every target signal. Magnetic iron content of heavily mineralized areas presents too many possibilities for error.

• **Step 4.** *Dig out your target* for examination. In dredge tailings be very careful in removing rocks that cover a target. It can easily fall down deeper in the pile of jumbled rocks. Continually check with your detector for responses as you expose targets. Because of all the loose rocks, use a plastic gold pan to place your dug rocks. Then use your detector to scan the pan for tell-tale signals.

BENCH TESTING

There are three basic methods for examining rock specimens:

- Visual (in the field)
- Bench Testing (with a metal detector)
- Acid tests (definitely not recommended for amateurs)

Bench testing offers a simple method of determining metallic content and monetary value of an ore specimen but also offers the only method other than visual examination. Of course, you must use a modern metal detector whose ground balance and discrimination make it capable of correctly identifying the various target metals (silver coins, gold coins, etc.).

Instructions on Bench Testing:

- **Step 1.** Lay your detector on a *non-metallic surface*.
- **Step 2.** Adjust your detector to its *Discriminate mode* with controls set at "zero" discrimination.

- **Step 3.** To determine the conductivity of your sample bring it across the search-coil. Gradually *increase discrimination* until you get no signal. Responses will help you decide whether your sample is basically a conductive (metallic) substance or iron. If it reads pull tab or higher, take it home. Let your discriminator scale guide you.
- Further instructions on bench testing can be found in other books from Ram Publishing Company that you can order with the form in the back of this booklet.

BLACK SAND

The term "black sand" has been used several times in this booklet, and some of you may be wondering just exactly what it means. Black sand is simply an accumulation of several minerals, with each weighing the same or more (having a higher specific gravity) than the gravel or dirt in which they have become deposited. Sometimes they contain great values; sometimes they are worthless. Granular sizes will also vary, depending primarily on iron deposits in the area.

A variety of minerals other than iron ore can usually be found in black sand concentrates, including gold, silver, platinum, tungsten, mercury, lead, galena, manganese and zinc. Also to be found are such gemstones as garnets and sapphires along with rare earth minerals.

Never discard black sand until you are convinced that no further gold can be extracted profitably. Remember, some firms purchase concentrates based on their assayed value. Scan



Prospectors should be aware that black sand is an excellent source for a variety of heavy minerals.

the material with a magnifying glass to spot the tiny granular gold pieces.

Once again, more detailed information can be found in *Gold Panning is Easy* and *You Can Find Gold with a Metal Detector,* books which are available from Ram Publishing. You can use the order form at the back of this book.

SURFACE SUCTION DREDGING

Crude gold dredges have been used in gold recovery since the early gold rush days. Dredging is by far the easiest way to retrieve gold from river and stream gravels. Just like the gold pan, dredging methods have been simplified for the weekend or recreational prospector.

Modern lightweight suction dredges—mounted on flotation devices that float the engine pump, sluice boxes, and classifiers above the water level—are capable of working bedrock cracks and crevices almost with the speed and efficiency of an underwater vacuum cleaner. A small gasoline-powered engine drives a centrifugal pump to create the vacuum needed to suck up sand, rock, gravel and other gold-bearing materials from stream beds. Such dredges are light enough to be packed into wilderness locations by one man. The sluice box is designed to retain even fine gold, while spilling large rocks and other materials back into the water.

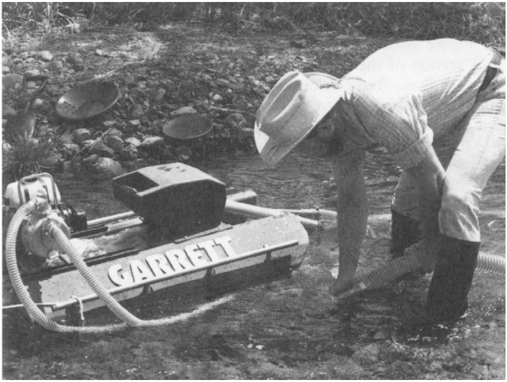
With a surface suction dredge, the modern prospector works along the bottom of a stream with the dredge's suction hose, which can range from 1.5" to 6" in diameter. Some gold can be recovered from the gravel, but the richest deposits are usually trapped in crevices of the bedrock itself beneath an overburden of sand, silt and gravel.

Material is pulled up through the suction hose and dumped onto the riffles in the sluice box that floats on the surface. Flow of water keeps sand, rocks and lighter material moving along the riffles until they drop out of the opposite end of the box into the water. Heavier gold flakes and nuggets are trapped behind the riffles where they remain until the concentrates are panned down—usually at the end of the day or after dredging ceases.

Check with authorities on the legality of using a surface suction dredge in a river or stream. Some states require a dredging permit while other states prohibit dredging operations in certain locations. Such prohibitions on dredging are the result of the environmental scars left

by huge river dredge operations of past years which often left the riversides visibly altered.

Small surface dredges used by recreational prospectors, however, return all material removed from a streambed immediately back into it. Rather than causing ecological harm, this turnover of the stream's bottom is worthwhile in providing new supplies of food for fish and other forms of marine life.



Surface suction dredges, such as this model once sold by Garrett, can be quite successful for the recreational prospector.

WARNING!

Never forget that all property in the United States is owned by some individual, business entity or public authority. Always get permission to hunt on private property and make certain that prospecting is legal before you begin hunting on public lands. This is especially true of federal and state parks, monuments, etc. Trespassing and failure to secure permission can result in confiscation of all property (including your car), fines and even imprisonment.

Observe all *Posted* signs. On private property always learn if hunting for gold is allowed and get permission from the owner before beginning your search.

NEVER TRESPASS, whether *Posted* signs are visible or not. I can't stress this strongly enough, observe ALL *Posted* signs…even when you are certain they have been placed incorrectly. You never want to risk arguing with a loaded gun.

SOME FINAL TIPS

• Use BB-gun pellets for practice in gold panning. Mash them slightly with a hammer so that they are no longer perfectly round. These little metallic "nuggets" will act similar to gold. Place several in your gold pan, shovel in a big scoop from the river or creek bank and go through your recovery techniques. If you are able to keep the BB pellets in the pan, this is excellent practice for gold.

• The amount of success you find in gold hunting will be in proportion to the amount of time and study you put into your search. It is vital that you know how to use your gold pan and metal detector properly in order to maximize their gold recovery potentials. Research on gold recoveries is important before hastening off to the field to search. Begin by looking in areas where gold is known to exist.

• Remember to enjoy yourself. Gold panning can be a great weekend activity for the entire family. It's great to explore the outdoor

areas that God put there for your enjoyment. Men, women and kids alike can search for gold in thousands of scenic locations while camping or on vacation. Good luck!



Even youngsters enjoy God's great outdoors and delight in finding nature's gold. Let's hope this young lady went home a happy gold-panning prospector!

GLOSSARY OF TERMS

Every hobby has its own vocabulary. Gold prospecting is no different. Here are a few terms and definitions to help you understand more about this fascinating hobby.

All-Metal Mode. A metal detector setting that detects all metal objects, no discrimination.

Alluvial Gold. Relates to gold deposited by running water, usually in association with silt, sand, gravel or similar material.

Bedrock. Strata of solid rock underlying nature's materials including sand, rock, various minerals and, hopefully, gold, silver and other metals.

Black Sand. See Magnetic Black Sand.

Claim. A small or large tract of land that has been legally staked out and claimed for exclusive prospecting purposes and is protected by law against poachers.

Classifier. Device designed to fit atop a gold pan through which materials going into the pan are passed. The classifier is made of plastic, metal or

some other material and is designed primarily to filter out rocks and other large pieces from passing into the gold pan itself. Also called a “grizzly” by some.

Discrimination. The ability of a metal detector to reject a target, such as a pull tab or foil, and accept a target such as a coin or jewelry, based on its metallic composition.

Dry Panning. Panning for gold with no liquid available to create the state of suspension in which gravity sinks gold flakes into the riffles of a *Gravity Trap* pan thus trapping heavier gold and silver.

Float. Chunk of ore broken off from the mother lode and moved (usually down hill) by gravity, wind, water, earth movement or some other force of nature, such as glacier movement.

Ground Balance. An adjustment made to “cancel” or ignore ground mineralization; may be done manually or automatically.

High Grade Specimen. Nugget containing large percentage of gold or other conductive material.

Magnetic Black Sand. Magnetite, a magnetic oxide of iron and, in a lesser degree, hematite. May also contain titanium and other rare-earth minerals but

serves mainly as an indicator of the possible presence of placer gold.

Nugget. A lump of precious metal found in nature. Gold nuggets can range in size from tiny pinhead-size flakes to huge, hundred-plus pound specimens.

Placer. Pronounced like "plaster" without the "t," the term describes an accumulation of gold, black magnetic sand and other elements of specific gravity higher than the sand, rock, etc. all found in the same area.

Pulse Induction. Used primarily for heavily mineralized environments such as salt water or the gold fields of Australia and is utilized in many of today's specialty detectors.

Prospecting. Hunting for valuable metals (ores) such as gold and silver.

Riffles. The 90˚ grooves on the lower side of a *Gravity Trap* gold pan, into which forces of gravity cause gold to sink and be effectively separated from other materials. Riffles enable gold to be panned (wet or dry) more thoroughly and rapidly.

Sluice Box. Device over which water is induced to flow; contains "slots" into which gravity sinks gold

and other heavier materials, permitting them to be separated.

Suction Dredge. Floating device with motor and tubing to recover material from lake/stream bottoms, plus sluice box for gravity separation of precious metals such as gold.

Tailings. Refuse that remains after precious metal has been recovered, usually by mining or dredging.

Wet Panning. The act of panning for gold with liquid being used to create the state of suspension that makes it easier for gravity to cause gold flakes to sink into the riffles of a *Gravity Trap* pan.



Gold panning can be a great weekend activity. Best of all, rich "glory holes" can still be found!

"Whether you hunt for gold in the field and stream or in old mines, mine dumps or dredge piles, this book will guide you on your quest to recover more gold."



Charles Garrett

Learn effective use of a metal detector and gold pan for:

- ***Dry panning***
- ***Wet panning***
- ***Nugget hunting***
- ***Field searching***

Ram Publishing Company
A subsidiary of
Garrett Metal Detectors
1881 West State Street
Garland, TX 75042
PN 1509400
ISBN 0-915920-98-0

ISBN-10: 0-915920-98-0 $3.95
50395
9 780915 920983